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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/989,779
Filing Date: November 20, 2001
Appellant(s): MILLER LL ET AL.

Kin-Wah Tong
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed August 24, 2005 appealing from the Office action mailed April 15, 2005.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

No evidence is relied upon by the examiner in the rejection of the claims under appeal.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 4, 8, 9, 11, 13, 15, 16 and 18 are rejected under 35 U.S.C. 102. Claims 2, 3, 5-7, 10, 12, 14, 17 and 19-21 are rejected under 35 U.S.C 103. This rejection is set forth in a prior Office Action, mailed on January 25, 2005.

(10) Response to Argument

CLAIM 1

The applicant argues with respect to claim 1 that Suzuki fails to disclose switching between a first and a second antenna in response to a predefined schedule of a sequence of scheduled packet bursts. The examiner respectfully disagrees. As discussed in the final rejection, Suzuki teaches switching between antennas (see column 9, lines 13-26) in a TDMA system (see column 6, lines 12-19). In a TDMA system, each mobile station in a network is given a time slot to monitor for transmissions from the base station. A message would be sent in bursts during the particular timeslot of the mobile station. Therefore, transmissions must be scheduled to coincide with the particular timeslot of the mobile station to be contacted, so all transmissions are in a predefined schedule of a sequence of scheduled packet bursts. The applicant notes in the brief the polling implemented between the receiver and base station so that the scheduling is synchronized. The polling, while not referred to in the claim, in very similar to the synchronization performed by a base station and a mobile station in a TDMA system.

The applicant further argues that the examiner has interpreted TDMA too broadly, and specifically that the examiner has failed to explain how a TDMA system anticipates switching between a first antenna and a second antenna in response to a

predefined schedule of a sequence of scheduled packet bursts. The examiner respectfully disagrees. The examiner relies on the use of TDMA only to teach that the transmissions are in a predefined schedule of a sequence of scheduled packet bursts, as described above in the in the rejection. The examiner relies on the disclosure of Suzuki to teach switching between a first antenna and a second antenna in response to burst data (see column 9, lines 13-26). The fact that the system is TDMA (see column 6, lines 12-19) supports the claimed use of a predefined schedule of a sequence of scheduled packet bursts. The examiner maintains that the switching between antennas in response to burst data in a TDMA system as taught by Suzuki does teach the limitations of a switching between antennas in response to burst data in a predefined schedule.

The applicant further argues that TDMA does not teach a predefined schedule of packet bursts, but rather a sequence of packet bursts. The examiner respectfully disagrees. Transmissions in TDMA are in timeslots, with a guardband between each timeslot. Usually 10 timeslots make up a frame, and the frame is repeated. Each mobile station gets a timeslot, so the transmissions must be within this timeslot, which means they transmissions must be scheduled. The applicant further argues that TDMA is not analogous to the predefined schedule because the time slots in TDMA are fixed. The examiner takes the admission that the timeslots are fixed to be further evidence that the schedule is predefined. The applicant argues that no useful information may ever be conveyed by the time period between two TDMA bursts because the time

spacing is constant. However, the applicants' claimed invention does not call for conveying useful information between the time period between two TDMA bursts.

CLAIM 4

The same arguments made with respect to claim 1 by the applicant and the response above by the examiner applies to claim 4.

The applicant argues that Suzuki does not teach an RF switch control for switching between a first and second antenna in response to a predefined schedule of a sequence of scheduled packet bursts combined with the concept of switching the antennas in a manner that each antenna receives a related packet burst. The examiner respectfully disagrees. As discussed above, Suzuki discloses an RF switch control for switching between a first and second antenna in response to a predefined schedule of a sequence of scheduled packet bursts (see response with respect to claim 1 above). As discussed in the final rejection, Suzuki discloses that an encoded signal dispersed into a plurality of symbols interleaved over a plurality of burst data (see column 8, line 62 – column 9, line 12), so the burst data are related as claimed. Each time the antenna switcher 72 receives burst data, the antenna switches the antenna under control of the communication control unit 78 (see column 9, lines 13-20 and figure 10), which reads on the claimed "the antennas are switched so that each antenna receives a related packet burst".

CLAIM 8

The applicant argues that Suzuki fails to teach receiving packet bursts individually at one of a plurality of antennas in accordance with a predefined schedule,

wherein the predefined schedule is used to select one of the plurality of antennas for receiving each of the packet bursts. The examiner respectfully disagrees. Suzuki teaches switching between antennas in response to burst data (see column 9, lines 13-26) in a TDMA system (see column 6, lines 12-19). In a TDMA system, each mobile station in a network is given a time slot to monitor for transmissions from the base station. A message would be sent in bursts during the particular timeslot of the mobile station. Therefore, transmissions must be scheduled to coincide with the particular timeslot of the mobile station to be contacted, so all transmissions are in a predefined schedule of a sequence of scheduled packet bursts. The applicant notes the polling implemented between the receiver and base station so that the scheduling is synchronized. The polling, while not referred to in the claim, in very similar to the synchronization performed by a base station and a mobile station in a TDMA system.

The applicant further argues that the examiner has interpreted TDMA too broadly, and specifically that the examiner has failed to explain how a TDMA system anticipates switching between a first antenna and a second antenna in response to a predefined schedule of a sequence of scheduled packet bursts. The examiner respectfully disagrees. The examiner relies on the use of TDMA only to teach that the transmissions are in a predefined schedule of a sequence of scheduled packet bursts, as described above in the in the rejection. The examiner relies on the disclosure of Suzuki to teach switching between a first antenna and a second antenna in response to burst data (see column 9, lines 13-26). The fact that the system is TDMA (see column 6, lines 12-19) supports the claimed use of a predefined schedule of a sequence of

scheduled packet bursts. The examiner maintains that the switching between antennas in response to burst data in a TDMA system as taught by Suzuki does teach the limitations of a switching between antennas in response to burst data in a predefined schedule.

The applicant argues that TDMA does not teach a predefined schedule of packet bursts, but rather a sequence of packet bursts. The examiner respectfully disagrees. Transmissions in TDMA are in timeslots, with a guardband between each timeslot. Usually 10 timeslots make up a frame, and the frame is repeated. Each mobile station gets a timeslot, so the transmissions must be within this timeslot, which means they transmissions must be scheduled. The applicant further argues that TDMA is not analogous to the predefined schedule because the time slots in TDMA are fixed. The examiner takes the admission that the timeslots are fixed to be further evidence that the schedule is predefined. The applicant argues that no useful information may ever be conveyed by the time period between two TDMA bursts because the time spacing is constant. The examiner does not see how this is relevant to the claimed invention.

CLAIM 9

The same arguments and response with respect to claim 8 apply to claim 9 as well.

The applicant argues that Suzuki fails to disclose individually receiving packet bursts at one of a plurality of antennas in accordance with a predefined schedule, wherein the predefined schedule is use to select one of the antennas for receiving each of the packet bursts combined with the aspect that each of the plurality of antennas is

connected to a radio receiver at separate times relative to the other antennas. As discussed above, Suzuki discloses individually receiving packet bursts at one of a plurality of antennas in accordance with a predefined schedule, wherein the predefined schedule is use to select one of the antennas for receiving each of the packet bursts (see response to claim 8 above). As discussed in the final rejection, Suzuki discloses that one antennas 71a-m at a time is connected to the receiver circuitry 73-76 (see figure 10), and that the antennas may be selected in the previously-determined sequential order (see column 9, lines 21-24), which reads on the claimed "each of the plurality of the antennas is connected to a radio receiver at separate times relative to other antennas."

CLAIM 11

The same arguments and response for claim 8 apply to claim 11.

The applicant argues that Suzuki fails to teach individually receiving packet bursts at one of a plurality of antennas in accordance with a predefined schedule, wherein the predefined schedule is use to select one of the antennas for receiving each of the packet bursts combined with the aspect that a message is spread across the plurality packet bursts by space-time coding. As discussed above, Suzuki discloses individually receiving packet bursts at one of a plurality of antennas in accordance with a predefined schedule, wherein the predefined schedule is use to select one of the antennas for receiving each of the packet bursts (see response to claim 8 above). As discussed in the final rejection, Suzuki discloses a system where an encoded signal dispersed into a plurality of symbols interleaved over a plurality of burst data (see

column 8, line 62 – column 9, line 12), which reads on the claimed "a message is spread across the plurality of packet bursts by space-time coding."

CLAIM 13

The applicant argues that Suzuki fails to teach a communication system wherein a first antenna and a second antenna are sequentially enabled in accordance with a predefined schedule. The examiner respectfully disagrees. As discussed in the rejection, Suzuki teaches switching between antennas (see column 9, lines 13-26) in a TDMA system (see column 6, lines 12-19). In a TDMA system, each mobile station in a network is given a time slot to monitor for transmissions from the base station. A message would be sent in bursts during the particular timeslot of the mobile station. Therefore, transmissions must be scheduled to coincide with the particular timeslot of the mobile station to be contacted, so all transmissions are in a predefined schedule of a sequence of scheduled packet bursts. The applicant notes the polling implemented between the receiver and base station so that the scheduling is synchronized. The polling, while not referred to in the claim, in very similar to the synchronization performed by a base station and a mobile station in a TDMA system.

The applicant further argues that the examiner has interpreted TDMA too broadly, and specifically that the examiner has failed to explain how a TDMA system anticipates switching between a first antenna and a second antenna in response to a predefined schedule of a sequence of scheduled packet bursts. The examiner respectfully disagrees. The examiner relies on the use of TDMA only to teach that the transmissions are in a predefined schedule of a sequence of scheduled packet bursts,

as described above in the in the rejection. The examiner relies on the disclosure of Suzuki to teach switching between a first antenna and a second antenna in response to burst data (see column 9, lines 13-26). The fact that the system is TDMA (see column 6, lines 12-19) supports the claimed use of a predefined schedule of a sequence of scheduled packet bursts. The examiner maintains that the switching between antennas in response to burst data in a TDMA system as taught by Suzuki does teach the limitations of a switching between antennas in response to burst data in a predefined schedule.

The applicant argues that TDMA does not teach a predefined schedule of packet bursts, but rather a sequence of packet bursts. The examiner respectfully disagrees. Transmissions in TDMA are in timeslots, with a guardband between each timeslot. Usually 10 timeslots make up a frame, and the frame is repeated. Each mobile station gets a timeslot, so the transmissions must be within this timeslot, which means they transmissions must be scheduled. The applicant further argues that TDMA is not analogous to the predefined schedule because the time slots in TDMA are fixed. The examiner takes the admission that the timeslots are fixed to be further evidence that the schedule is predefined. The applicant argues that no useful information may ever be conveyed by the time period between two TDMA bursts because the time spacing is constant. The examiner does not see how this is relevant to the claimed invention.

CLAIM 15

The same arguments and response for claim 13 apply to claim 15.

The applicant argues that Suzuki fails to teach a communication system that comprises a first antenna and second antenna that are sequentially enabled in accordance with a predefined schedule to communicate with at least one storage medium at a receiver combined with the aspect that a first and second signal bursts are each part of a space-time coded message spread across two bursts and wherein a common message is derived from the sequential signal burst received by the antennas. The examiner respectfully disagrees. As discussed above, Suzuki discloses individually receiving packet bursts at one of a plurality of antennas in accordance with a predefined schedule, wherein the predefined schedule is use to select one of the antennas for receiving each of the packet bursts (see response to claim 8 above). As discussed in the final rejection, Suzuki discloses that the plurality of symbols are part of the same signal (see column 8, line 62 – column 9, line 12), which reads on the claimed "the first and second signal bursts are each a part of a space-time coded message spread across two bursts." The processing of the reception signal includes deinterleave processing for deinterleaving the switched signal over a plurality of burst data to provide data in the original order (see column 9, lines 45-53), which reads on the claimed "a common message is derived from the sequential signal bursts received by the first and second antennas."

CLAIM 16

The same arguments and response for claim 13 apply to claim 16.

The applicant argues that Suzuki fails to teach a communication system that comprises a first antenna and second antenna that are sequentially enabled in

accordance with a predefined schedule to communicate with at least one storage medium at a receiver combined with the aspect of retaining the first and second signal bursts in at least one storage medium and processing to deliver the single unified message. The examiner respectfully disagrees. As discussed above, Suzuki discloses individually receiving packet bursts at one of a plurality of antennas in accordance with a predefined schedule, wherein the predefined schedule is use to select one of the antennas for receiving each of the packet bursts (see response to claim 8 above). As discussed in the final rejection, Suzuki discloses that the reception signal is deinterleaved by deinterleaving circuit 75 so that it is reconverted into the original data (see column 9, lines 31-35), which reads on the claimed "said enabling includes retaining the first and second signal bursts in said at least one storage medium and processing to deliver the single unified message."

CLAIM 18

The same arguments and response for claim 13 apply to claim 18.

The applicant argues that Suzuki fails to teach a communication system that comprises a first antenna and second antenna that are sequentially enabled in accordance with a predefined schedule to communicate with at least one storage medium at a receiver combined with the aspect of deriving a common message by decoding a space-time coded signal spread across and received by both the first and second antennas. The examiner respectfully disagrees. As discussed above, Suzuki discloses individually receiving packet bursts at one of a plurality of antennas in accordance with a predefined schedule, wherein the predefined schedule is use to

select one of the antennas for receiving each of the packet bursts (see response to claim 8 above). As discussed in the final rejection, Suzuki discloses that the processing of the reception signal includes deinterleave processing for deinterleaving the switched signal over a plurality of burst data to provide data in the original order (see column 9, lines 45-53) and that the burst data are received on a plurality of antennas (see column 9, lines 18-20), which reads on the claimed "said deriving the common message includes selecting a message from one of the receiving antennas."

CLAIM 2

The applicant argues that Suzuki fails to disclose switching between a first antenna and second antenna in response to a predefined schedule of a sequence of scheduled packet bursts. The examiner respectfully disagrees. Suzuki teaches switching between antennas (see column 9, lines 13-26) in a TDMA system (see column 6, lines 12-19). In a TDMA system, each mobile station in a network is given a time slot to monitor for transmissions from the base station. A message would be sent in bursts during the particular timeslot of the mobile station. Therefore, transmissions must be scheduled to coincide with the particular timeslot of the mobile station to be contacted, so all transmissions are in a predefined schedule of a sequence of scheduled packet bursts.

The applicant argues that the combination of Suzuki and Aaronson fails to teach the invention. The examiner respectfully disagrees. Suzuki anticipates switching between a first antenna and second antenna in response to a predefined schedule of a sequence of scheduled packet bursts, as discussed above.

The same arguments and response applied to claim 1 apply to claim 2.

The applicant argues the combination of Suzuki and Aaronson fails to teach an RF switch control for switching between a first and second antenna in response to a predefined schedule of a sequence of scheduled packet bursts combined with the concept scheduling sequence burst prescribed by a QoSs defined by a MAC protocol. The examiner respectfully disagrees. As discussed above, Suzuki discloses individually receiving packet bursts at one of a plurality of antennas in accordance with a predefined schedule, wherein the predefined schedule is use to select one of the antennas for receiving each of the packet bursts (see response to claim 1 above). As discussed in the final rejection, Aaronson et al discloses a radio system where the MAC layer schedules communication bursts (see Aaronson column 4, lines 22-63) taking into account factors such as propagation delay between the different nodes, queuing of data and synchronization of the time transmitting from multiple nodes (see Aaronson column 3, lines 22-30), which reads on the claimed, "schedules sequence bursts prescribed by a QoS defined by a MAC protocol."

CLAIM 3

The same arguments and response applied to claim 1 apply to claim 3.

The applicant argues that the combination of Suzuki and Aaronson fails to teach an RF switch control for switching between a first and second antenna in response to a predefined schedule of a sequence of scheduled packet bursts in combination with the fact that the RF switch control is a MAC processor that is synchronized with transmission of a base station. The examiner respectfully disagrees. As discussed

above, Suzuki discloses individually receiving packet bursts at one of a plurality of antennas in accordance with a predefined schedule, wherein the predefined schedule is use to select one of the antennas for receiving each of the packet bursts (see response to claim 1 above). As discussed in the final rejection, Aaronson et al discloses that the MAC algorithm should synchronize the time of transmitting from multiple nodes (see column 3, lines 22-29).

CLAIM 12

The applicant incorrectly states that claim 8 was rejected in the Office Action under 35 U.S.C. 103 as being unpatentable over Suzuki in view of Aaronson. Claim 8 was rejected in the Office Action under 35 U.S.C 102 as being anticipated by Suzuki.

The applicant argues that Suzuki fails to disclose switching between a first antenna and second antenna in response to a predefined schedule of a sequence of scheduled packet bursts. The examiner respectfully disagrees. Suzuki teaches switching between antennas (see column 9, lines 13-26) in a TDMA system (see column 6, lines 12-19). In a TDMA system, each mobile station in a network is given a time slot to monitor for transmissions from the base station. A message would be sent in bursts during the particular timeslot of the mobile station. Therefore, transmissions must be scheduled to coincide with the particular timeslot of the mobile station to be contacted, so all transmissions are in a predefined schedule of a sequence of scheduled packet bursts.

The applicant argues that the combination of Suzuki and Aaronson would only disclose a method and apparatus for transmitting and receiving data packets using a

number of antennas, wherein each antenna, that receives the data packets, is chosen in a predetermined order or randomly. The examiner contends that the predetermined order in a TDMA environment (see Suzuki column 6, lines 12-19) reads on the applicants claimed invention using a predefined schedule of a sequence of scheduled packet bursts.

The same arguments and response applied to claim 8 apply to claim 12. The applicant argues that the combination of Suzuki and Aaronson fails to teach individually receiving packet bursts at one of a plurality of antennas in accordance with a predefined schedule, wherein the predefined schedule is use to select one of the antennas for receiving each of the packet bursts combined with the notion that transmitting a message combines a protocol with signal processing. The examiner respectfully disagrees. As discussed above, Suzuki discloses individually receiving packet bursts at one of a plurality of antennas in accordance with a predefined schedule, wherein the predefined schedule is use to select one of the antennas for receiving each of the packet bursts (see response to claim 8 above). As discussed in the final rejection, Aaronson et al discloses a radio system where the MAC layer schedules communication bursts (see column 4, lines 22-63) taking into account factors such as propagation delay between the different nodes, queuing of data and synchronization of the time transmitting from multiple nodes (see column 3, lines 22-30).

CLAIM 5

The applicant argues that the combination of Ohashi and Khayrallah fail to disclose switching between a first antenna and second antenna in response to a

predefined schedule of a sequence of scheduled packet bursts. The examiner respectfully disagrees. Ohashi discloses a diversity radio communication system where an antenna switch circuit 10 switches the first and second antennas 11 and 12 to connect them to the transmit/receive switch circuit 9 (see page 6, lines 1-8), which reads on the claimed invention that receives communications from a transceiver at a transmission station by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, and uses this configuration to receive data from first and second antennas. The received data is stored in the temporary memory 2 of the memory 3 (see page 6, lines 38-40), which reads on the claimed "recording the received bursts as soft information in a storage medium". Khayrallah discloses an improvement of time-diversity methods where a receiver cycles through groups of antennas and the antennas within a group are combined by the receiver chains (see paragraph 3), which reads on the claimed "combining the soft information from the first and second bursts into a single message". Furthermore, Khayrallah discloses that antenna switching is preferably bur not necessarily done before a new slot is to be received, which reads on the claimed "enabling a first antenna to receive a first packet burst in accordance with said predefined schedule; enabling a second antenna to receive a second packet burst in accordance with said predefined schedule," wherein the system may be a TDMA system (see paragraph 5) so all transmissions and receptions are according to a predefined schedule.

The applicant argues that the combination of Ohashi and Khayrallah teaches a diversity radio communication system that would switch to a particular antenna chosen

from a group of antennas; the receiver cycling through the groups of antennas in a predetermined order or at random. The examiner contends that cycling through the antennas in a predetermined order in a TDMA environment reads on the claimed invention of, "receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule...enabling a first antenna to receive a first packet burst in accordance with said predefined schedule; enabling a second antenna to receive a second burst in accordance with said predefined schedule."

CLAIM 6

The same arguments and response made for claim 5 apply to claim 6.

The applicant argues that the combination of Ohashi and Khayrallah fails to disclose receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule by wireless transceivers, wherein the scheduled communications are being formatted as multiple packet bursts, combined with the aspect that each packet burst contains the same complete message. The examiner respectfully disagrees. As discussed above, cycling through the antennas in a predetermined order in a TDMA environment reads on the claimed invention of, "receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule by wireless transceivers, wherein the scheduled communications are being formatted as multiple packet bursts." As discussed in the final rejection, when a detected error is uncorrectable, the terminal unit on the receiver side recognizes it as a receiving error and sends a response indicating the error to the transmitter side, requesting re-transmission of the same data, and the same data is re-

transmitted (see Ohashi et al page 10, line 57 – page 11, line 2) and simultaneously, the receiving error count is increased by 1 and the receiving antenna is switched (see Ohashi et al page 11, lines 39-47), so in this case the same data would be received by two different antennas as claimed.

CLAIM 7

The applicant argues that the combination of Ohashi, Khayrallah and Suzuki fails to teach switching between a first antenna and a second antenna in response to a predefined schedule of a sequence of scheduled packet bursts. The examiner respectfully disagrees. As discussed in the response to claim 5, Ohashi discloses a diversity radio communication system where an antenna switch circuit 10 switches the first and second antennas 11 and 12 to connect them to the transmit/receive switch circuit 9 (see page 6, lines 1-8), which reads on the claimed invention that receives communications from a transceiver at a transmission station by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, and uses this configuration to receive data from first and second antennas. The received data is stored in the temporary memory 2 of the memory 3 (see page 6, lines 38-40), which reads on the claimed "recording the received bursts as soft information in a storage medium". Khayrallah discloses an improvement of time-diversity methods where a receiver cycles through groups of antennas and the antennas within a group are combined by the receiver chains (see paragraph 3), which reads on the claimed "combining the soft information from the first and second bursts into a single message". Furthermore, Khayrallah discloses that antenna switching is preferably bur not

necessarily done before a new slot is to be received, which reads on the claimed "enabling a first antenna to receive a first packet burst in accordance with said predefined schedule; enabling a second antenna to receive a second packet burst in accordance with said predefined schedule," wherein the system may be a TDMA system (see paragraph 5) so all transmissions and receptions are according to a predefined schedule.

The applicant argues that the combination of Ohashi, Khayrallah and Suzuki would only disclose a diversity radio communication system that could send an encoded signal over a plurality of burst data that would switch to a particular antenna chosen from a group of antennas; the receiver cycling through the groups of antennas in a predetermined order or at random. The examiner contends that cycling through the antennas in a predetermined order in a TDMA environment reads on the claimed invention of, "receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule by wireless transceivers, wherein the scheduled communications are being formatted as multiple packet bursts."

The same arguments and response applied to claim 5 apply to claim 7.

The applicant argues that the combination of Ohashi, Khayrallah and Suzuki fails to teach receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule by wireless transceivers, wherein the scheduled communications are being formatted as multiple packet bursts, combined with the aspect that each packet burst contains a portion of a space-time coded message spread across a first and second packet bursts. The examiner respectfully

disagrees. As discussed above, cycling through the antennas in a predetermined order in a TDMA environment reads on the claimed invention of, "receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule by wireless transceivers, wherein the scheduled communications are being formatted as multiple packet bursts." As discussed in the final rejection, Suzuki discloses a system that receives an encoded signal dispersed into a plurality of symbols interleaved over a plurality of burst data (see column 8, line 62 – column 9, line 12), which reads on the claimed "each packet burst contains a portion of a space-time coded message spread across the first and second packet bursts".

CLAIM 10

The applicant argues that Suzuki fails to disclose switching between a first and second antenna in response to a predefined schedule of a sequence of scheduled packet bursts. The examiner respectfully disagrees. Suzuki teaches switching between antennas in response to burst data (see column 9, lines 13-26) in a TDMA system (see column 6, lines 12-19). In a TDMA system, each mobile station in a network is given a time slot to monitor for transmissions from the base station. A message would be sent in bursts during the particular timeslot of the mobile station. Therefore, transmissions must be scheduled to coincide with the particular timeslot of the mobile station to be contacted, so all transmissions are in a predefined schedule of a sequence of scheduled packet bursts.

The applicant argues that the combination of Suzuki and Struhsaker would teach a method and apparatus for transmitting and receiving packet data units that contain a

complete message using a number of antennas; where each antenna that receives the packet data units is chosen in a predetermined order or randomly. The examiner contends that The examiner contends that cycling through the antennas in a predetermined order in a TDMA environment reads on the claimed invention of, "switching between a first antenna and a second antenna in response to a predefined schedule of a sequence of scheduled packet bursts."

The same arguments and response applied to claim 8 apply to claim 10.

The applicant argues that the combination of Suzuki and Struhsaker fails to teach individually receiving packet bursts at one of a plurality of antennas in accordance with a predefined schedule, wherein the predefined schedule is used to select one of the antennas for receiving each of the packet bursts combined with the aspect of including a complete message with each packet burst. The examiner respectfully disagrees. As discussed above, cycling through the antennas in a predetermined order in a TDMA environment reads on the claimed invention of, "individually receiving packet bursts at one of a plurality of antennas in accordance with a predefined schedule, wherein the predefined schedule is used to select one of the antennas for receiving each of the packet bursts." As discussed in the final rejection, Struhsaker et al discloses that a packet data unit may be a complete packet transmission or a fragment of a much larger message (see page 12, paragraph 159).

CLAIM 14

The applicant argues that Suzuki fails to disclose switching between a first antenna and second antenna in response to a predefined schedule of a sequence of

scheduled packet bursts. The examiner respectfully disagrees. As discussed above, Suzuki discloses switching between antennas in response to burst data (see column 9, lines 13-26) in a TDMA system (see column 6, lines 12-19). In a TDMA system, each mobile station in a network is given a time slot to monitor for transmissions from the base station. A message would be sent in bursts during the particular timeslot of the mobile station. Therefore, transmissions must be scheduled to coincide with the particular timeslot of the mobile station to be contacted, so all transmissions are in a predefined schedule of a sequence of scheduled packet bursts.

The same arguments and the same response applied to claim 13 apply to claim 14.

The applicant argues that the combination of Suzuki and Ohashi fails to disclose a communication system that comprises a first antenna and second antenna that are sequentially enabled in accordance with a predefined schedule to communicate with at least one storage medium at a receiver combined with the aspect that a first and second signal bursts are identical packets of a common message. The examiner respectfully disagrees. As discussed above, cycling through the antennas in a predetermined order in a TDMA environment reads on the claimed invention of, "a first antenna and second antenna that are sequentially enabled in accordance with a predefined schedule to communicate with at least one storage medium at a receiver." As discussed in the final rejection, Ohashi et al discloses that when a detected error is uncorrectable, the terminal unit on the receiver side recognizes it as a receiving error and sends a response indicating the error to the transmitter side, requesting re-transmission of the

same data, and the same data is re-transmitted (see page 10, line 57 – page 11, line 2), which reads on the claimed "first and second signal bursts are identical packets of a common message".

CLAIM 17

The same arguments and the same response applied to claim 13 apply to claim 17.

The applicants argue that the combination of Suzuki and Ohashi fails to disclose a communication system that comprises a first antenna and second antenna that are sequentially enabled in accordance with a predefined schedule to communicate with at least one storage medium at a receiver combined with deriving a common message by selecting a message from one of the antennas. The examiner respectfully disagrees. As discussed above, cycling through the antennas in a predetermined order in a TDMA environment reads on the claimed invention of, "a first antenna and second antenna that are sequentially enabled in accordance with a predefined schedule to communicate with at least one storage medium at a receiver." As discussed in the final rejection, Ohashi et al discloses a system where, when an error is detected, the antenna is switched and the information is re-transmitted (see page 10, line 57 – page 11, line 2), which reads on the claimed "selecting a message from one of the antennas".

CLAIM 21

The same arguments and response applied to claim 8 apply to claim 21.

The applicants argue that the combination of Suzuki and Ohashi fails to disclose individually receiving packet bursts at one of a plurality of antennas in accordance with

a predefined schedule, wherein the predefined schedule is use to select one of the antennas for receiving each of the packet bursts combined with the notion that upon reconstruction of a received message, sending a message to a transmitting end to cease further message bursts. The examiner respectfully disagrees. As discussed above, cycling through the antennas in a predetermined order in a TDMA environment reads on the claimed invention of, "individually receiving packet bursts at one of a plurality of antennas in accordance with a predefined schedule, wherein the predefined schedule is use to select one of the antennas for receiving each of the packet bursts." As discussed in the final rejection, Ohashi et al discloses a system where, when an error occurs, a response indicating the error is sent to the transmitting end, requesting re-transmission of the same data (see page 10, line 57 – page 11, line 2), and this process is continued until a re-transmission upper-limit is reached (see page 11, lines 5-14). If no error occurs, no message requesting re-transmission is sent.

CLAIM 19

The applicant argues that Suzuki fails to disclose switching between a first antenna and second antenna in response to a predefined schedule of a sequence of scheduled packet bursts. The examiner respectfully disagrees. As discussed above, Suzuki discloses switching between antennas in response to burst data (see column 9, lines 13-26) in a TDMA system (see column 6, lines 12-19). In a TDMA system, each mobile station in a network is given a time slot to monitor for transmissions from the base station. A message would be sent in bursts during the particular timeslot of the mobile station. Therefore, transmissions must be scheduled to coincide with the

particular timeslot of the mobile station to be contacted, so all transmissions are in a predefined schedule of a sequence of scheduled packet bursts.

The same arguments and the same response applied to claim 8 apply to claim 19.

The applicant argues that the combination of Suzuki and Sampath fails to disclose individually receiving packet bursts at one of a plurality of antennas in accordance with a predefined schedule, wherein the predefined schedule is use to select one of the antennas for receiving each of the packet bursts combined notifying a transmitter at a transmitting end by a receiving end of a number of a number of antennas and radio receivers at the receiving end. The examiner respectfully disagrees. As discussed above, cycling through the antennas in a predetermined order in a TDMA environment reads on the claimed invention of, "individually receiving packet bursts at one of a plurality of antennas in accordance with a predefined schedule, wherein the predefined schedule is use to select one of the antennas for receiving each of the packet bursts." As discussed in the final rejection, Sampath et al discloses a system where a characteristic signal generator 450 generates a characteristic signal, based on one or more estimated system characteristics and/or deterministic system characteristics, such as number of transmit antennas, spatial configuration of the transmit antennas and transmit diversity mode (see page 4, paragraph 50).

CLAIM 20

The same arguments and the same response applied to claim 8 apply to claim 20.

The applicant argues that the combination of Suzuki and Sampath fails to disclose individually receiving packet bursts at one of a plurality of antennas in accordance with a predefined schedule, wherein the predefined schedule is use to select one of the antennas for receiving each of the packet bursts combined with a receiver notifying a transmitter that the receiver accepts and responds to protocol-assisted diversity operations. The examiner respectfully disagrees. As discussed above, cycling through the antennas in a predetermined order in a TDMA environment reads on the claimed invention of, "individually receiving packet bursts at one of a plurality of antennas in accordance with a predefined schedule, wherein the predefined schedule is use to select one of the antennas for receiving each of the packet bursts." As discussed in the final rejection, Sampath et al discloses a system where some slots provide header information for the frame, such as whether spatial multiplexing or transmit diversity is enabled for the frame (see page 3, paragraph 40), which reads on the claimed "a receiver notifying a transmitter that said receiver accepts and responds to protocol-assisted diversity operations".

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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Conferees:

Charles Appiah

CHARLES APPIAH
PRIMARY EXAMINER

Lester Kincaid

LESTER G. KINCAID
SUPERVISORY PRIMARY EXAMINER